

Lens barrel for zoom camera

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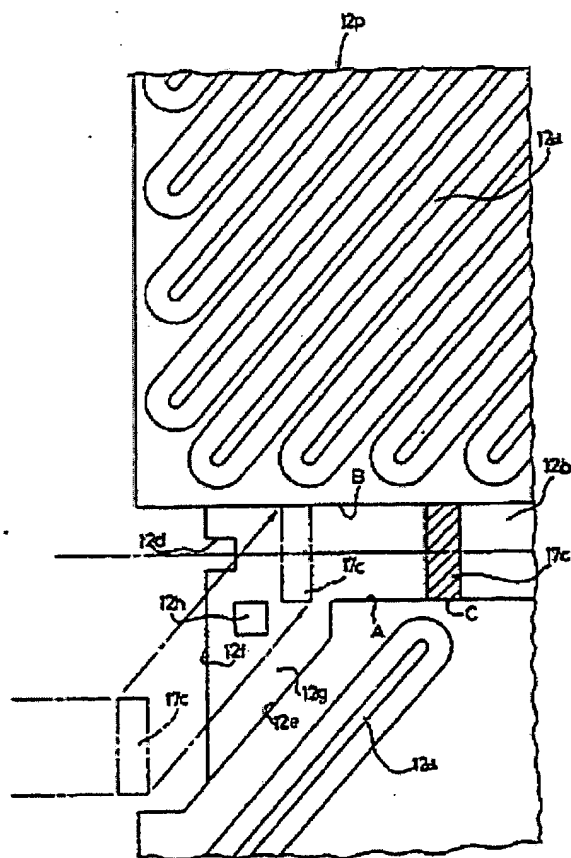
US5793537 (A1)

FR2744230 (A1)

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Abstract of DE19702505

The lens barrel (10) includes an outer barrel (12) which has a thread (12a) in its inner periphery and at least one linear guide groove (12bi) intersecting the thread and extending in the direction of the barrel optical axis. A middle barrel (16) has a thread (16a) provided on its outer periphery for meshing with the first thread. An inner barrel (17) is positioned inside the middle barrel, and is provided with at least one follower (17ci) for engaging with the linear guide groove. The inner barrel is guided along the optical axis without rotating about it w.r.t the outer barrel. A front end of each linear guide groove is formed with at least one enlarged width dimension to enable rotational movement of the follower into the guide groove during initial meshing of the middle barrel with the outer barrel. An annular retaining member may be provided for engaging with a front end of the outer barrel.



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①9 BUNDESREPUBLIK
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①2 Offenlegungsschrift
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G 02 B 7/10

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②2 Anmeldetag: 24. 1. 97
④3 Offenlegungstag: 31. 7. 97

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③ Unionspriorität:

8-12317	26.01.96	JP
8-21438	07.02.96	JP
8-34037	21.02.96	JP
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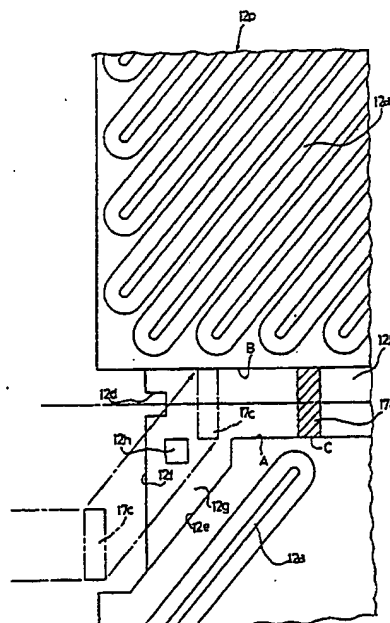
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⑤4 Objektiv mit Geradföhrungsmechanismus

⑤7 Die Erfindung betrifft eine Vorrichtung zum Föhren zweier ineinander angeordneter Objektivtuben (16, 17) an einem festen Objektivtubus (12), in dem der äußere bewegliche Tubus (16) durch Gewindeeingriff drehbar geföhrt ist, während der innere bewegliche Tubus (17) in dem festen Tubus (12) mit mindestens einem Föhrvorsprung (17c) in mindestens einer Geradföhrensnut (12b) in Richtung der optischen Achse beweglich geföhrt ist und beide Tuben (16, 17) nach vorn herausbewegt werden. Die Geradföhrensnut (12b) ist an ihrem vorderen Ende entgegen dem Gewinde-dreh-sinn erweitert.



DE 197 02 505 A 1

Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen

BUNDESDRUCKEREI 06. 97 702 031/524

38/22

103 39 389.7
PENTAX Corp.

A 9504 DE - mn

Translation of the Office Action
of July 29, 2005

Request of examination, fee paid on July 2, 2004

Documents filed on received on

The examination of the above mentioned patent application has led to the following result.

For response a term

until December 1, 2005

is granted, starting with delivery.

For documents that are eventually attached to the response (e.g. patent claims, specification, portions of specification, drawings), two sets each on separate sheets are required. Of the response itself only one set is required.

If the patent claims, the specification and the drawings are amended in the course of the procedure, the applicant, unless the changes are suggested by the Patent Office, has to indicate individually at which location in the original documents the features of the invention described in the new documents are disclosed.

NOTICE ON THE POSSIBILITY OF DERIVING A UTILITY MODEL

The applicant of a patent application filed after January 1, 1987 with effect for the Federal Republic of Germany can file a utility model application relating to the same subject-matter while claiming the application date of the earlier patent application. This derived utility model (§ 5 Utility Model Law) can be applied for by the end of 2 months following the end of the month in which the patent application is terminated by non-appealable rejection, voluntary withdrawal or withdrawal fiction, an opposition procedure having been concluded or - in the case of the grant of the patent - the deadline for the appeal against the decision of grant having elapsed without response. Detailed information on the requirements of a utility model application, including a derived application, is to be taken from the Leaflet for Utility Model Applicants (G 6181) which can be obtained free of charge at the Patent Office and the public patent inspection halls.

(1) DE 197 02 505 A1

1. The terminology of the present application includes terms such as "Mehrgewinde" [*in the English text: helicoid*], "Drehführvorsprung" [*in the English text: rotation-guiding projection*], "Linearführkeil" [*in the English text: linear guide key*] or the like, which are not common in the German language and when considered separately do not reveal what is to be expressed¹. For example, a "Mehrgewinde" [*literally: multi-thread*] could also mean a thread extension instead of a "Mehrfachgewinde" [*helicoid*]. In order to meet the requirements of briefly and precisely stating what is to be actually expressed, the applicant is requested to replace the above exemplary terms by common terms such as "Mehrfachgewinde" [*helicoid*], "Drehführungs vorsprung" [*rotation-guiding projection*], "Linearführungs keil" [*linear guide key*]. Otherwise, the meaning would only be revealed to the reader from the entire context.
2. For the time being, the Examining Division has found the prior art document (1).

Due to the applicant's request for accelerated examination and in view of the fact that document (1) goes back to the applicant, the Examining Division departs from the usual procedure, does not deal with document (1) in detail and tries to shorten the procedure such that a completion of the examination procedure should be possible after the next submission.

Provided one considers understandable what the applicant probably wishes to have protected and tacitly clarifies claim 1, adds function-relevant features by orientating by the embodiments and starts from the following conditions:

- a) first and second rotatable rings (outer barrel 15 and helicoid ring 18) are rotatably arranged with respect to a stationary barrel 22 and along their common rotational axis one behind the other,
- (b) the two rings are put together (joined together), wherein at least one projection formed at the first ring protrudes into a recess formed at the inner surface of the second ring and adapted to said projection,
- (c) a rotation transfer groove extending along (parallel to) the rotational axis (along the optical axis) of the first ring is formed at the inner surface of said first ring, said groove extending beyond the projection,
- (d) a roller follower 32 (rotation transfer projection) formed at a cam ring (11) (rotational member) is guided in the rotation transfer groove,

¹ This is a terminology problem in the German language only and cannot be properly expressed in English and does not affect the respective English terms.

(e) the roller follower 32 (rotation transfer projection) projects into a slot 14e of a linear guiding ring 14 whose path upon rotation of the two rings determines the adjustment (the position) of the cam ring 11 along the optical axis.

In view of document (1), the present application suggests under conditions a) to e) that the measure c) in connection with b) is not made obvious by the prior art.

According to §8 section 9 of the Patent Regulations, designations, terms and reference numerals have to be uniform. Where reference numerals are indicated above in a) to e), the designations and terms have been taken from the embodiments in the description for this reason. As regards the designation of the items having the reference numerals 14 and 32, there is nothing to be said against a generalization if attention is paid to §8 of the Patent Regulations. However, such a generalization must not lead to uncertainty as to what is to be protected and must also not go beyond the original disclosure. As regards the items having the reference numerals 22 and 11, however, generalizations would result in lack of clarity and thus require additional explanatory amendments not beneficial to brevity and precision, so that there are no apparent reasons for a generalization.

3. If complete, adapted and deficiency-free documents in line with the above are submitted, a grant of patent is likely to be expected.

Examining division for class G02B
Dipl.-Phys. Deninger
Extension: 3013

Enclosure: copy of citation (1)